With Fehling's solution reduction takes place, sometimes immediately, sometimes after a considerable interval. Moreover, the amount and character of the precipitate is subject to considerable variation. Sometimes there may be observed a peculiar play of color, a sort of opalescence, an absence of precipitation or filtrability, and other peculiarities which have not so far been explained and are not referable to the reducing power of simple milk-sugar. On these grounds the presence, in addition to the milk-sugar, of some saccharine substance either free or in some combination, appears probable.

After the first engorgement of the breasts the amount of sugar, as indicated by Fehling's test, varies unaccountably, and sometimes it continues to show its presence intermittently for a long time.

These sugar-containing urines vary in specific gravity up to 1.037. Urines of specific gravity below 1.020 reduce the Fehling's solution only after boiling for some minutes. The amount of solid matter and of urea is found to be relatively increased in the samples in which sugar is present. The increase in the organic matter is not accounted for by the amount of urea, but it seems probable that even if the casein and fat of the milk do not appear unchanged in the urine, yet their equivalents may be excreted in some form. They may in future correct analysis be found among the constituents of urine.

What practical bearing galactosuria may have on the healing of wounds is a point for further observation.

Dr. Sinclair considers that the milk drawn by an infant from overdistended breasts, being deprived by partial resorption of sugar and salts, and doubtless also a portion of the water, is too rich in casein and butter, and is in consequence apt to disagree.

The observations would have been more valuable if they had been contrasted with others in which the flow of milk was diminished or arrested without engorgement of the breasts. It has been noted that sugar has appeared in the urine under these circumstances, irrespectively of engorgement.

GYNECOLOGY.

Malignant Diseases of the Ovary.

The *Zeitschrift f. Geb. u. Gyn.*, 1885, p. 14, contains a paper by Cohn on this subject, viewed from a clinical standpoint. In it he compares the success hitherto obtained in operations performed for these diseases with that of 100 cases treated in the gynecological department of the University Hospital at Berlin. Till recently, the best ovariotomists have stated that almost every woman affected by the above disease who was operated on, died soon after the operation. This opinion, together with the faint prospect of prolonging life, even if recovery did happily occur, caused all interference to be deprecated as much as possible.

Quite lately, however, some operators have advised that even malignant neoplasms of the ovaries, if diagnosed, be removed, supporting their opinion by cases in which the operation added years of health to the life of the woman.

The question as to the desirability of operating involves many considerations—*e. g.*, Is there a prospect of removing the whole growth? What progress is the latter making? When should the operation be performed?

Cohn's remarks are based on 100 cases of malignant tumors of the ovaries in which laparotomy was performed; 86 of these operations were completed; in 14 nothing more than exploratory incisions were made. He divides malignant diseases of the ovaries into solid tumors, viz., sarcomata and carcinomata; and into tumors which have more or less fluid contents—viz., cystomata which have undergone cancerous degeneration, papillary cystomata, and finally those which are partly glandular, partly dermoid, with coexisting malignant degeneration.

The possibility of more or less permanent recovery taking place after removal of malignant growths of the ovaries has hitherto received but scanty attention from writers on gynecology, and it is most desirable to settle the question whether the results of ovariotomy in malignant ovarian new formations are really as bad as seems to be generally believed.

Diagnosis is very important, though difficult from a want of definite signs. Sarcoma of the ovary is perhaps the most difficult growth to diagnose; it forms a solid tumor which has usually a flat surface showing here and there traces of previous peritonitic irritation; with sarcomata are generally associated menstrual irregularities and extreme anæmia.

Ovarian carcinoma presents rather more characteristic signs. It should always be suspected when a solid ovarian tumor is found, which, while still of moderate size, causes ascites and anasarca of the limbs (without coexisting cardiac, pulmonary, or renal disease) and an emaciation which begins slowly and then progresses rapidly.

The diagnosis of cysts that have undergone cancerous degeneration (except papillary cysts) mainly depends on the following points. A cyst is discovered which suddenly begins to increase rapidly, leading to ascites, to œdema of the lower limbs, and to deterioration of the general health; in favorable cases, direct palpation of the indurated nodules in the walls of the tumor is possible. Papillary cysts are divided by Cohn into two classes: (1) those in which the papillæ are confined to the inner surface of the cyst, and (2) those in which they have reached the outer surface. The first group can sometimes be diagnosed by tapping, if the operation is very successful and yields histological elements derived from the villi. The second group is more easy to diagnose, for as soon as the papillæ reach the surface of the cyst they involve the adjacent peritoneum, and when this has occurred the characteristic irregular masses of varying consistence can be felt on the surface, both of the cyst and of the peritoneum (best in Douglas's pouch), especially on bimanual exploration.

Examination of the ascitic fluid which is always present is still of doubtful utility, some authors considering the presence of certain groups of cells as proof of the malignant nature of the growth, while others deny such significance. A blood-stained peritoneal fluid associated with an ovarian growth is, however, a very common occurrence with papillary degeneration. Moreover, in the latter, both ovaries are very commonly diseased.

As regards tapping for the sake of diagnosis, Cohn considers it a bad practice in most cases, though allowable where there is great obscurity and difficulty—as, for instance, where it cannot otherwise be ascertained whether the tumor is ovarian or not. If, however, the diagnosis is merely a question of malignancy or non-malignancy, tapping is to be discountenanced, since malignant growths often spread with greater rapidity after it.

Exploratory incisions are often necessary to settle the question whether the growth can be removed or not.

Cohn next discusses the wisdom of operating in malignant diseases of the ovaries, and entirely dissents from the view generally taken, namely, that the prognosis in such cases operated on is practically hopeless.

This, indeed, has been almost universally taught, though of late the prognosis for sarcoma has been admitted to be somewhat better. From a study of his series of cases, he thinks that if the tumor is more or less freely movable, the retroperitoneal glands not too extensively affected, and no very large malignant deposits can be felt on the peritoneum—if, in short, the operation presents no especial difficulties, the only objection to it is the fear of a rapid return of the disease.

Cohn then gives the results in the 100 cases above referred to:

86 completed operations—

(1) 10 cases of sarcomata were operated on: 5 recovered; 3 died from operation: in 2 the disease returned (once 1, once 2 years afterward) and proved fatal.

(2) 11 cases of carcinomata were operated on: 4 died from the operation; in 3 the disease returned and caused death; 4 cases recovered.

(3) 14 cases of proliferous cystic glandular carcinomata: 2 died from the operation; 4 died from a return of the disease; 5 recovered and were lost sight of; 2 more recovered and were well 3 years; another was well 8 months after the operation; in yet another, the growth returned and the operation was repeated, the patient being well 8 months after second operation.

(4) Mixed tumors. *a.* 1 dermoid sarcoma—recovery, good health 4½ years. *b.* dermoid carcinomata: 2 cases; in 1 the disease recurred 8 months later; the other recovered and was in good health 6 months after operation.

(5) Myxomata. 3 cases were operated on: 2 died 3 days after operation; 1 recovered and was well 5 months after operation.

(6) Proliferous papillary cysts. *a.* Innocent (by these, Cohn means those which either were not microscopically examined, or those in which the cancerous nature was not clear)—22 cases operated on: 2 died from operation; 20 recovered. *b* Malignant—14 operations: 2 died from operation; 4 from a recurrence of the disease; the rest recovered. *c.* Suspected of malignancy, 8 cases: 1 died; 7 recovered.

Exploratory incisions—14 cases: 3 died from operation (1 papillary tumor, 1 myxoma, 1 carcinoma); 11 recovered.

Only 20 per cent of the whole number of patients operated on died from the operation, which, Cohn points out, is a much smaller proportion than that shown by previous statistics. As regards the liability to recurrence, the sarcomata showed least, the papillary growths most, tendency to recur. Taking the 86 cases of completed operations, and estimating the number of women under observation for at least one year, and in whom during that period no recurrence took place, as many were completely cured as died from the operation.

Cohn concludes from his researches that when an ovarian tumor is discovered which can be diagnosed as being other than a mere hydrops folliculi or a parovarian cyst, if there is reason to think that it is a proliferous tumor, and especially if it affects both ovaries, immediate ovariotomy is indicated.

NOTES ON PAROVARIAN CYSTS AND THEIR TREATMENT.

Since the days of Lieutaud and Velpeau, small rudimentary cysts arising outside the ovary have obtained recognition; their origin in the broad ligament by cystic dilatation of the canal of Rosenmüller, has been demonstrated by Broca and others. Bird at an early date called attention to their surgical treatment and contents, and in recent times the question of certainty in their differential diagnosis from ovarian tumors, the possibility of radical cure, the nature of their contents, and the pathology of the subject, have all met with full investigation at the hands of the most able authorities. The description of these tumors as given by the majority of authors is as follows: "They are unilocular cysts, situated in the neighborhood of the ovary, but always independent of that organ and characterized (1) by containing a liquid, clear and limpid as spring water, of low density and with little or no albumen; (2) by having thin walls, transparent and but slightly vascular; (3) by their benign character and the ease with which they are cured by simple tapping.

Much discussion has arisen on the above points. As regards the exact source whence these tumors spring, many opinions have been given. DR. TERILLON admits (*Annales de Gynécologie*, December, 1885) that the broad ligaments may be the seat of cystic tumors of varied nature and multiple origin, though he insists that the most frequent variety consists of those which contain a limpid, not stringy liquid, and spring from the parovarium or analogous organ (called the organ of Rosenmüller), and for which the appellation *parovarian* should be retained. As regards the unilocular constitution and contents of these tumors, there is no hard and fast rule; in some cases cysts of the broad ligaments are multilocular, and their contents resemble those of ovarian tumors, just as the liquid contents of true ovarian tumors sometimes resemble exactly those of tumors considered peculiar to broad ligament cysts. The probable truth is that the clear, limpid, non-albuminous fluid of a low specific gravity is diagnostic of a cyst arising from the remains of the Wolffian body, while in other cases the cyst is probably of ovarian origin, having its base of implantation in the broad ligament, or being incarcerated within its folds. The relations of these cysts to the neighboring organs are interesting; when the tumor has unfolded the fimbriated extremity of the tube it comes in contact with the hilum, and, continuing to develop, carries the ovary on one side; should the cyst grow toward the uterus, it renders the latter more or less immovable (an important point in diagnosis). In rare instances it strips up the peritoneum before it, becoming thus extraperitoneal; in some cases the Fallopian tube is found stretched over the tumor as a bridle. The ovary itself may be atrophied, hypertrophied, only slightly altered or normal. The diagnosis of parovarian cysts from cysts of the ovary is not easy; no one sign can be said to be pathognomonic, the following characteristics are, however, of value: Slow development, good general condition of the patient, and especially only medium fulness of the sac, which is but little distended. Briefly, it may be said that when a unilocular cyst, slowly developed, occurs in a young woman whose general health is good, and when the liquid obtained by puncture is clear, limpid, not stringy, and presents the necessary features on analysis, the diagnosis of parovarian cysts may reasonably be made.

TREATMENT.—Medical treatment is of no avail; surgical treatment may be either palliative or curative. For a long time simple puncture of the cyst was considered quite sufficient to insure a permanent cure, but more recent researches have demonstrated that many of these so-called cures were only temporary, and the more radical treatment of excision was finally necessary. The author illustrates this point by eight cases.

In all of these cases the diagnosis of parovarian cyst was certain; in all, the fluid showed the usual characteristics—low density, small amount of albumen, absence of paralbumen, somewhat high proportion of chloride of sodium, very small amount of solids after desiccation, and, lastly, perfect transparency, with color little or not at all marked.

The author has collected over seventy cases in which a cure was claimed after one tapping, but in all these cases the mistake had been made of not allowing a sufficient time to elapse before considering the cure permanent; the sac of the tumor may lie empty and shrivelled for months or even years, and yet fill again with the fluid. So difficult is it to fix any time after tapping at which a cure can be judged complete, that one is justified in considering cure after puncture as the exception and relapse as the rule.

Tapping with subsequent injection of iodine. The author only mentions this treatment to condemn it.

Extirpation. There does not appear to be any objection to this procedure, and in the hands of many surgeons the success obtained has been very great. The author comes to the following conclusions:

(1) Parovarian cysts, the fluid contents of which are limpid, not stringy, and devoid of paralbumen, return after complete evacuation of their contents.

(2) This return, though usually slow, and possibly occurring only after an interval of three or four years or more, may occur within a few months.

(3) The interval of time between tapping and return of the fluid is such as to simulate complete cure, and has proved a source of error.

(4) It is difficult to say exactly in what proportion of cases the tumor returns, but is is more often the rule than the exception.

(5) There are some well-established cases, though few, in which a complete cure has been obtained after one or more tappings.

(6) Ought tapping, therefore, always to be practised in supposed cases of parovarian cysts?

(7) Removal, complete or incomplete, is indicated after relapse; the results are good, the mortality being below fifteen per cent.

(8) Removal is preferable to injection of iodine.

UNILATERAL PYOKOLPOS.

DR. LUDWIG KLEINWÄCHTER, in the *Zeitschrift für Geb. und Gyn.*, xi. r. 260, describes a rare form of vagina duplex, in which one side is normal or nearly so, while the other is fully developed in its middle portion, but closed at both extremities.

"M. A., æt. forty-five; menstruation normal till lately, when, owing to the approaching climacteric, some irregularity has set in. Has always enjoyed good health. Confined seven times (25, 24, 23, 21, 19, 13, and 12 years ago). When first pregnant, she noticed that a tumor was forming in the neighborhood of, and with a tendency to protrude from, the vagina. It did not increase much, and soon ceased to give her any trouble. In the winter of 1883–84, the tumor again began to grow, gradually increasing till it reached the size of a fist, protruded from the vagina, and caused the patient difficulty in walking. About July 1, 1884 (three weeks ago), suddenly, and without much pain, pus was discharged from the tumor, the latter immediately becoming smaller. There has never been any urinary trouble, nor has her general health suffered."

On examination, Kleinwächter found the external generative organs normal. The anterior vaginal wall protruded from the vagina, forming a swelling of the size of a small apple, closely resembling a prolapse of the anterior vaginal wall. About the middle of the protruding fluctuating mass (corresponding to its summit) was an opening as large as a pin's head, out of which trickled healthy looking pus. Pressure caused a gush of pus to take place. A fine probe could readily be introduced through this opening for a distance of four inches without causing any pain, its point evidently passing into a cavity of considerable size, which, however, had no connection with either urethra, bladder, or vagina. The latter appeared somewhat smaller than normal. The size, shape, and position of the uterus could not well be made out, owing to the obstructing tumor. The meatus urinarius was slightly displaced downward.

A director was introduced into the opening in the swelling, and its wall freely incised both upward and downward, allowing about two ounces of laudable pus to flow out. To prevent adhesions from taking place, a semilunar piece was then excised from the anterior wall. The free opening thus formed closely resembled the ordinary vaginal aperture, and was situated immediately above the proper vagina. On introducing a speculum, the walls were found exactly to resemble those of a case of chronic catarrhal vaginitis. The parietes were very red, supplied with rugæ and greatly enlarged papillæ, just as they are met with in chronic granular catarrh. The cavity formed a wide cylindrical canal, ending above in a cul-de-sac, but readily admitting a tubular speculum, 1¼ inches in diameter. No trace of a portio vaginalis could be discovered. The thickness of the wall between this blind canal and the vagina amounted to several millimetres.

Microscopical examination of the portion removed showed nothing unusual. From without inward epidermis, dermis, corium (with the usual papillæ) were to be seen, followed by a fairly thick layer of subcutaneous connective tissue, supplied by numerous relatively wide vessels. Then came a mucous layer consisting of large stratified squamous epithelium cells, with a free surface bounding the cavity. The same kind of epithelium lined the whole internal surface of the canal; the fluid contents were found to consist of ordinary pus.

The further history of the case may be given in a few words. The cavity was irrigated with a carbolic lotion till the incised edges had healed, and afterward astringent injections were used to cure the catarrhal condition. Fifteen days after the operation she returned home, free from her previous trouble.

The internal genital organs were not carefully explored until the wound had healed.

The vagina proper has a normal width, and measures 3⅗ inches in length; the uterus belonging to it has a normal length, though somewhat narrow. It does not lie in the median line, but to the right of it, and curves outward in that direction. The right ovary is normally situated. The blind canal is 3⅘ inches long, and somewhat wider than the vagina. Its lower end lies a little above the vagina, further on it runs parallel to it, so that its course as a whole tends to wind spirally round the vaginal canal. On bimanual examination, there is found lying immediately above the convex end of the blind sac, though apparently not connected with it, a cylindrical body as big as a filbert, passing outward and to the left, and with an enlarged outer end.

Its inner end is in contact with the cervix, though whether actually continuous with it or not could not be determined. The left ovary is *in situ*, but smaller and softer than the right. The wall between the vagina and the blind canal appears moderately thick, and is now thrown into folds, owing to the diminished tension. The patient has an unusually large pelvis, especially as regards width.

There are two ways in which an imperforate or rudimentary formation of the vagina may be brought about. Either the hollowing out of Müller's body (from which it is formed) may be retarded, or, after Müller's body has already become tubular, it may again become closed in different parts of its length, in consequence of inflammatory processes. The first has been called primitive, the second secondary atresia. It is by no means unlikely that numerous so-called vaginal cysts have been really rudiments of a vagina, and that the fluid contained in them is the result of inflammation during fœtal life. They would then be cases of secondary atresia. Those, on the other hand, in which the second vagina is well formed, except that the upper and lower ends are closed, are instances of a primitive atresia, not necessarily involving any accumulation of fluid. The latter will only form when either excessive secretion is induced by some external cause, or inflammation sets in, or if extravasation of blood takes place—*e. g.*, from a wound. A common source of irritation is met with in pregnancy and parturition; the mechanical and physiological alterations being quite sufficient for the purpose. This is illustrated by the above case as well as by one published by Smolsky, in which the existence of the second vaginal canal was only noticed when pregnancy set in. Pregnancy and parturition may, of course, have a similar influence on a case of the primitive variety. This appears to have happened in those published by Gräfe and Freund, in which the so-called congenital cysts seemed to grow at each confinement.

Whether the sac forms a pyokolpos or hæmatokolpos, does not depend on its origin, but on the degree of irritation caused by pregnancy, or the extent of injury done at the birth.

Accompanying the vagina duplex we may have a double uterus, though this association is not essential.

The clinical features of unilateral pyo- or hæmato-kolpos differ in important points from one in which the collection of fluid occupies the whole length of one-half of a double genital canal (utero-vaginal). The onset of menstruation and its recurrence do not affect the unilateral imperforate vagina. All the symptoms characterizing the cases in which a uterus duplex accompanies the vagina duplex (regular recurring pains and the formation of an abdominal tumor, in spite of the menstrual flow) are absent. Either stationary vaginal cysts are present, or no indication whatever of any malformation of the genital system is found. Only when increased secretion or hemorrhage takes place into the second closed vagina do symptoms arise; these are mainly mechanical in nature—*e. g.*, the vagina may be encroached upon, or dysuria is complained of. If the swelling be left to take its natural course, the fluid contents are sooner or later discharged.

If the rudimentary vagina is only represented by small cysts, diagnosis is difficult, if not impossible; evacuation of the fluid contents assists to some extent; if the swelling is due to remains of the second vagina, the following characteristics generally hold good: the cyst lies more deeply, its wall is lined with stratified squamous epithelium, and is supplied with bloodvessels, muscular tissue, and papillæ. But on none of these features can absolute reliance be placed; the microscopical points of distinction between these cysts and those due to other causes are, therefore, very indefinite.

Some help is got by the relation of the malformed to the healthy half; if it tends to take a spiral course and resembles the latter in size, if, moreover, the naked eye and microscopical characters resemble those found on the healthy side, and especially if the uterus is bifid, there are good grounds for diagnosing the case as one of vagina duplex.

MEDICAL JURISPRUDENCE AND TOXICOLOGY.

UNDER THE CHARGE OF

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DEATH BY DROWNING.

DRAPER, of Harvard University, has recently communicated to the Massachusetts Medico-Legal Society (*London Medical Record*, Jan. 15, 1886) the results of an inquiry into the signs, etc., of death by drowning, based on a personal inspection of 149 cases. In summarizing the anatomical proofs of death by submersion, he divides them into two groups, viz., those indicating the generic cause of death (asphyxia), and those especially showing that the death was by drowning. Among the former he adds nothing which is new. The latter may, however, be mentioned here, although they are for the most part, if not wholly, what are everywhere regarded as signs of death by drowning. They are fine froth at the lips and nostrils, and in the trachea and bronchi; water in the bronchi, with or without mud or other foreign matters; extreme distention of the lungs, with superficial emphysema; water in the small bronchioles and in the vesicles, as shown by the free escape of fluid from the cut surface of the lung; thin, clear fluid in the pleural cavities; water, particularly muddy water, in the stomach. As confirmatory signs are mentioned *cutis anserina;* the presence of objects clenched in the hands and clearly derived from the water in which the body was found; blanching of the palms and soles; marked lividity of the face, with injection of the conjunctivæ.

ATROPINE POISONING.

KRATTER contributes a paper of considerable value on poisoning by atropine and belladonna (*Viertelj. f. gericht. Med.*, Bd. xliv. S. 52–95, 1886). It is based on a careful study of eight cases within his own experience, and is mainly concerned with the best methods for detecting the poison in the body. The conclusions at which he arrives are as follows:

(1) The detection of the poison in the corpse is certain, provided proper methods are employed.

(2) The urine is especially valuable for this purpose, as the alkaloid appears to be almost entirely excreted by the kidneys, and apparently without change. It can even be found there in cases which have not terminated fatally.

(3) The microscopic, especially the crystalloscopic, examination in polarized light of the fine crystalline residue of the urine is recommended as a preliminary step in the process of detection, since the crystals of sulphate of atropine are tolerably characteristic in form.

(4) But while the crystalloscopic test is not to be neglected, not perhaps the Gulielmo-Brunner chemical test (peculiar odor on heating with concentrated acids), positive proof of the presence of atropine is only to be found in the well-known action of the poison on the pupil. And the best of all eyes for this purpose, because much the most sensitive, is the human eye; next comes that of the cat. The eyes of dogs and rabbits are not to be relied on, if the atropine exists only in small quantity.

(5) Apropine shows great resistance to putrefactive decomposition, and therefore may be looked for in bodies dead for some months.

(6) As the atropine is rapidly excreted in the urine, it may happen that if the person survives for a few days, the poison cannot be found in the body.

TESTS FOR ATROPINE.

PROFESSOR FLÜCKIGER contributes an interesting paper on this subject to the *Pharmaceutical Journal* (Ser. 3, vol. xvi. pp. 601, 602, 1886), which is mainly the outcome of A. W. Gerrard's discovery (*Ibid.*, xiv. pp. 718 and 729) that the mydriatic alkaloids possess a greater alkalinity than other natural alkaloids, as is shown by the fact that atropine and hyoscyamine precipitate mercuric chloride, while the other natural alkaloids fail to do this. Flückiger confirms this observation, and gives still further proof of the exceptional alkaline power of the mydriatic alkaloids by stating that these alone among alkaloids have the power to redden a solution of phenol-phtaleïn. He therefore recommends the use of mercuric chloride and of phenol-phtaleïn for the detection of atropine and hyoscyamine. Obviously, however, one must, before applying the reagent, exercise the greatest care in freeing the alkaloidal solution from the presence of mineral alkalies or alkaline carbonates. The author gives a modification of some of the other tests for atropine. For example, he recommends that a milligramme of atropine and an equal quantity of nitrate of soda should be rubbed together on a white slab by means of a glass rod moistened with a very little strong sulphuric acid (sp. gr. 1.84); then a little sodium hydrate is rubbed in a mortar with absolute alcohol, so as to form a saturated solution, which is added drop by drop to the oxidized alkaloid on the slab, when a red or violet color is developed.

THE ALKALOIDS OF JABORANDI.

PROF. HARNACK (*Arch. f. exp. Path. u. Pharm.*, Bd. xx. S. 439–445) gives the result of a careful examination, chemical and toxicological, of the new alkaloid, pilocarpidine, discovered in the leaves of jaborandi by Merck, of Darmstadt. Pilocarpidine ($C_{10}H_{14}N_2O_2$) decomposes easily into a new base, jaboridine ($C_{10}H_{12}N_2O_3$), just as pilocarpine ($C_{11}H_{16}N_2O_2$), the formerly discovered alkaloid of jaborandi, decomposes into jaborine. The relationship of pilocarpine to nicotine ($C_{10}H_{14}N_2$) was pointed out some years ago by Harnack and Meyer. The existence of this relationship is now more fully demonstrated by the discovery of pilocarpidine, as a comparison of their formulæ will show. Indeed, it is possible that pilocarpidine is a dihydroxyl-nicotine. This alkaloid has the same, though weaker, action on the animal organism as pilocarpine; and a like result was obtained in comparing jaboridine with jaborine.

ALLEGED COCAINE POISONING.

SPEAR (*Medical Record*, New York, November 14, 1885) relates a case of apparent poisoning by cocaine subcutaneously injected. The case was that of a drunken soldier who, for the alleged purpose of sobering himself injected what there is every reason to believe was a solution of cocaine. In half an hour, without previous exhilaration or excitement, he fell into a deep sleep. Two hours later, when he was visited by a surgeon, he was found to be perfectly comatose, face cyanosed, pupils very much contracted, skin pale and bathed with perspiration, respiration very slow and shallow—not stertorous, pulse slow and of fair volume. The surgeon diagnosed the case as one of opium poisoning and treated it accordingly, using the stomach-pump, which, however, brought up nothing, injecting atropine hypodermatically, and spanking the legs and buttocks, etc. After taking coffee several times the patient finally vomited, and showed signs of returning consciousness in about an hour and a half from the commencement of the treatment. Three hours later he was able to walk alone, but was very sleepy, though not allowed to sleep longer than five minutes at a time. Three and a half hours after this he was permitted to sleep for an hour, and was easily waked.

It appeared from inquiry afterward, that the soldier had been addicted to the use of cocaine to allay a craving for alcoholic stimulants, and it was proved that he had recently bought ten grains of muriate of cocaine, which he had dissolved in water and injected a syringeful every few hours, commencing thirteen or fourteen hours before he injected the final dose. He had used the whole of the cocaine.

This case is interesting as one of the first recorded cases of cocaine poisoning. It is highly doubtful, however, whether it is a real case of poisoning by cocaine, since this drug has never had attributed to it so great a toxicity as the circumstances of this case imply.

POISONING BY DECOMPOSED CODFISH.

BERENGER-FERAUD (*Annales d'hyg. publ.*, Ser. 3, t. iv. p. 516) thus concludes a lengthened inquiry into this subject: It is established beyond doubt that decomposed dried codfish is sometimes capable of producing poisonous effects. These effects are similar to those of cholerine, or cholera nostras, consisting mainly of violent gastro-intestinal irritation, which rarely ends fatally. The fungus which is often found growing on such fish, is not the poisonous agent. It is the putrid flesh itself which acts poisonously. As a prophylactic measure, the author recommends repeated steeping of the fish in a large quantity of water, followed by a thorough cooking. If in spite of this the cod retains its putrid odor, it ought to be rejected.

The author compares the poisonous action of putrid cod with that of putrid sausages, and remarks that though the latter is generally much more energetic and serious, the poisonous agent is much the same in both. The main difference lies in the fact that the sausage poison is more readily absorbed than the cod poison, and thus reaches and attacks vital organs.

POISONING BY MUSSELS.

A committee appointed by the German Government, and presided over by Virchow, has recently completed its investigation of a number of cases of fatal poisoning from the eating of mussels, which occurred lately (*Lancet*, December 5, 1885). It was supposed, in accordance with a long-standing though frequently disproved belief, that the poisoning was due to the mussels having contained copper with which they had become impregnated while adhering to two vessels from which they had been gathered, and which were supposed to be copper-sheathed. The commission was able to show that this was not the case, and it is therefore to be hoped that in the future we shall cease to attribute the occasional poisonous action of mussels to copper. The mussels were found to be of a different species from the edible mussel, though closely resembling it, and they were proved to contain a poisonous alkaloid, apparently identical with curarine.

ERGOT.

DR. KOBERT (*Schmidt's Jahrbücher*, Bd. 207, No. 9, S. 237, 1885), in continuation of his well-known investigation of the active constituents of ergot, now gives an account of all the cases of ergot poisoning published during the last hundred years or so, but which have not been reported in the *Jahrbücher*. All cases of ergot poisoning he designates as sphacelic acid poisoning, since he has discovered that the main poisonous constituent of ergot is that acid. Many of these cases are of interest to the practitioner, as affording an indication of the extent to which ergot may be administered medicinally without producing gangrene. In one case, the patient, a woman of twenty-five years, suffered from gangrene of the extremities two months after she had taken 20 centigrammes (3 grains) of ergot daily for a period of one month. In another similar case, a boy of thirteen received the same dose for a period of two months; but ten days later fever set in with thoracic pain, which in two days developed into gangrene of the lungs. These two cases also show that the action of sphacelic acid may remain latent for a considerable time.

Among the other cases summarized by Kobert are three of acute ergot poisoning which, on account of the rarity of this form of poisoning, deserve notice. They occurred in Russia in 1884. Three pregnant women had taken large doses of ergot, and all three died within a very short time. The most prominent symptoms previous to death were feebleness of pulse, violent thirst, vomiting, bleeding from uterus, and unconsciousness. The post-mortem appearances were tolerably alike in all: skin icteric; blood escaping from genitals (in one case a small fœtus embedded in the coagula); several ecchymoses in subcutaneous tissue, also under pleura and pericardium, former visible through the skin in many places in the limbs; extravasations of blood also under peritoneum, in lungs, and in kidneys. In the uterus of one there was a four months' fœtus, with sanguineous mucus in the vagina; in the uterus of another, a four to six weeks' fœtus, with loose clots of blood between the villi of the chorion and the uterine wall; the uterus of the third, as already mentioned, had discharged the fœtus. The contents of the stomach and intestines were dark colored, and were found to consist largely of ergot. The mucous membrane was pale in some places, reddened in others, and ecchymosed in one case.

Kobert also quotes some cases in which cataract of the lens followed the prolonged taking of ergot. Such cases are not very rare. Finally, Kobert advances the opinion that in those cases of ergotism in which the spinal cord is affected, sphacelic acid probably causes the changes in the cord by contracting its bloodvessels. For the benefit of those who are not familiar with the results of Kobert's earlier communications, it may be stated that this effect on the bloodvessels is that to which Kobert refers all the poisonous activity of sphacelic acid.

INFLUENCE OF AGE ON THE ACTION OF STRYCHNINE.

F. A. FALCK (*Arch. f. d. ges. Physiologie*, xxxvi. p. 285, 1885) has extended his experiments on this subject to guinea-pigs and mice—his former experiments were on rabbits. He sums up the results of all his experiments in the statement that the newly born animal is relatively very insensible to the action of strychnine, but that the sensibility very rapidly increases until the tenth day in the rabbit, and the fifteenth in the mouse, when sensibility is greatest. After this period, as age increases the sensibility diminishes until maturity is reached, when it becomes constant and normal.

Chlorate of Potassium.

V. Mering has published an exhaustive memoir on the physiological, toxic, and therapeutic effects of this salt (*Das Chlorsaure Kali*, Berlin, 1885, pp. 142). He has employed what appears to be a satisfactory method for the determination of the chlorate in the urine, etc. With the help of this, he shows that nearly the whole of the chlorate passes through the body unchanged, and almost entirely reappears in the urine—*e. g.*, he recovered 4.62 grammes out of 5 grammes which he had himself swallowed.

Based, however, on the fact that the blood outside the body reduces the chlorate, he admits the probability of such a reduction taking place inside the body, but only to a very limited extent. And, indeed, this appears to be proved by the chocolate color of the blood of animals poisoned by the chlorate, the chocolate color being due to the formation of methæmoglobin. But as such blood quickly undergoes change, returning to the normal after death, it is advisable to make the post-mortem in cases of chlorate of potassium poisoning as soon as possible. V. Mering further shows from experiments on animals, and also with blood outside the body, that elevation of temperature and decrease of alkalinity of the blood increase the amount of the reduction. He offers this as an explanation of the variability in the poisonous action of the chlorate. Febrile persons are therefore more susceptible than others to the action of the salt, more especially if the alkalinity of the blood is diminished by the drinking of acid lemonades, etc.

The author gives a description of the typical symptoms of poisoning by the salt, which are chiefly obstinate vomiting, profuse diarrhœa, great dyspnœa, marked cyanosis, and feebleness of heart. Post-mortem: blood, chocolate-brown; organs generally little changed.

Arsenic.

Chittenden and Herbert E. Smith (*Medico-Legal Journal*, vol. iii. pp. 145–148) report the analyses of the organs and tissues in two cases of arsenical poisoning—the one by arsenious acid, the other by Paris green (aceto-arsenite of copper). In both cases merely a trace of arsenic was found in the brain, although a considerable quantity was found elsewhere. This, they say, affords additional evidence of the view already advanced by Chittenden, that in poisoning with arsenic the presence of an appreciable amount of poison in the brain is a reliable indication of the administration of a soluble and diffusible form of arsenic—*e. g.*, sodium arsenite.

Toxicity of Salts of Copper.

Considerable difference of opinion exists as to the toxicity of copper salts, some authorities maintaining that they are highly poisonous, others that they are not, unless in very large doses. The question as to which is right is of some importance, since copper is a common adulterant of pickles, etc., and otherwise occasionally contaminates food. PROF. DUMOULIN (Ghent) has therefore recently undertaken the reinvestigation of the subject, results of which are reported in the *Semaine Médicale*, December 2, 1885. His experiments were made mainly on dogs and rabbits. Doses of sixty to ninety grains of cupric sulphate had no serious effects. The subacetate (verdigris), the carbonate, the oxide, and the oleopalmitate were similarly tried, though in somewhat smaller doses, and were found to be not more harmful than the sulphate. Vomiting was produced when the dose was large. The salts were even, in some instances, administered daily for a year without leading to a fatal result. Observing that one of the dogs which was suffering from impetigo became cured of the eruption during the administration of the copper, the author tested the value of cupric sulphate, in one grain doses daily, in the treatment of impetigo and various other skin diseases in children, with good results.

The conclusion of medico-legal value to be drawn from the author's experiments, is that foods containing copper salts in small quantity are not likely to have injurious effects even though consumed over a long period of time. In spite of this, however, it would be unwise for medical officers of health to regard adulteration with copper as other than injurious.

ARSENICAL POISONING OF A CHILD THROUGH MOTHER'S MILK.

BROUARDEL and G. PONCHET (*Annales d'hygiene publ.*, t. xiv. pp. 73–86) have reported to the Société de Médecine legale de France the results of an inquiry into an important and probably unique case of poisoning of an infant by arsenic, where it was alleged that the poison had been introduced through the milk of the mother, whom her husband had unsuccessfully endeavored to kill by means of arsenic. The mother recovered after vomiting and diarrhœa, but the infant of two months succumbed after exhibiting the same symptoms. The body of the child was exhumed twenty months later, and after a careful chemical analysis of the cadaver and its surroundings, the authors were satisfied that arsenic was present in the body to the extent of about five mgms., a quantity, in their opinion, sufficient to have killed so young an infant. They afterward made experiments on nursing women, guinea-pigs, rabbits, and dogs, and found that arsenic, when administered to the mother, passes freely into the milk, and, in the case of the lower animals, is detectable in the bodies of the sucklings. In one case, that of the dog, they succeeded in killing one of three pups by administering arsenic to the mother, although the mother recovered.

RELATIVE TOXICITY OF THE ORGANIC AND INORGANIC CONSTITUENTS OF THE URINE.

It is known that the toxicity of normal human urine when injected into the veins is mainly due to the inorganic constituents. LÉPINE and AUBERT (*Compt. rend.*, C. I. No. 1) have now found that the toxicity of urine from fever patients is, on the other hand, largely due to the organic constituents. 60 c. c. of normal urine, per kilogramme of weight of animal, sufficed to kill a dog; the ash of 65 c. c. produced the same result. But if fever urine were employed, 25 c. c. of the urine itself, or the ash of 40 c. c., proved lethal.